U.S. Department of the Interior
Bureau of Land Management
Kremmling Field Office
P O Box 68
Kremmling, CO 80459

ENVIRONMENTAL ASSESSMENT

NUMBER: DOI-BLM-CON02000-2013-016-EA

CASEFILE/PROJECT NUMBER:

PROJECT NAME: Owl Mountain Sanitation Salvage

LEGAL DESCRIPTION: T. 6 N., R. 78 W., Sections 1, 2, and 3; T. 7 N., R. 78 W., Section 34 and 35; T. 7 N., R. 77 W., Section 31 and 32; 6th P.M.

APPLICANT: BLM

PURPOSE & NEED FOR THE ACTION: An analysis of the existing condition in the Owl Mountain project area has determined that there is a need to salvage-log lodgepole pine stands that have experienced severe Mountain Pine Beetle (MPB) infestation and mortality. The harvest of dead trees would salvage forest products from suitable forest lands in accordance with Resource Management Plan (RMP) direction. A published literature peer reviewed paper (Lewis and Hartley, 2006), suggests that lodgepole pine trees killed by Mountain Pine Beetle (MPB) in previously unmanaged (i.e. unthinned) stands begin falling approximately five years after death and most dead trees are on the ground within 14 years. The same studies found that trees begin falling a couple of years sooner in commercially, thinned stands and most dead trees are on the ground within 12 years. When trees begin to fall, and when most of the dead trees are on the ground, is dependent on a number of factors related to climate, site conditions, and the diameter of the dead trees. The ability to utilize beetle-killed pine declines rapidly once the trees are on the ground. In addition to producing forest products, salvage logging would facilitate the regeneration of harvested sites by creating conditions favorable to lodgepole pine seed germination and seedling survival.

As dead trees begin to fall, they pose a threat to public safety which would increase as fall rates accelerate. Falling trees could also block access routes and damage other infrastructure such as gates, cattleguards, fences, or stocktanks. In addition, surface fuel loading would increase dramatically in a stand once the beetle-killed pine is on the ground. There would be an increased risk that a fire occurring under these conditions would tend to be large-scale and severe, with resultant long-term impacts on site productivity (from factors such as soil sterilization).

There is also a need to reduce stand densities in regenerated stands to improve vigor, increase resilience to drought, and improve resistance to insect and disease infestations.

The primary purposes of this project would be to: salvage dead and dying timber while it still retains some value, reduce the threat to public safety, protect infrastructure, and improve tree health in young overstocked stands. Hazard trees would be cut and removed near or adjacent to access roads; and associated gates, cattleguards, and signs. Where practicable, salvage units may incorporate the removal of dead trees adjacent to other infrastructure (such as fences or stocktanks). In other words, where unit locations coincide with such structures, unit boundaries would be adjusted to incorporate dead trees that might damage those structures. The proposed action would also promote regeneration in the harvest units, and improve forest health and vigor in young regenerated stands.

Decision to be Made: The Decision to be made is whether or not to authorize the implementation of the Proposed Action.

SCOPING, PUBLIC INVOLVEMENT, AND ISSUES:

Scoping: Internal scoping was initiated when the project was presented to the Kremmling Field Office interdisciplinary team on 03/05/2013. External scoping was conducted by posting this project on the KFO's on-line National Environmental Policy Act (NEPA) register on 03/05/2013. A scoping letter describing the existing condition, purpose and need, and the proposed action was sent to 22 adjacent property owners and other interested parties on April 26, 2013 (See Appendix XX for the scoping letter mailing list; See scoping letter in project file). Those receiving letters were asked to submit their written comments by May 28, 2013. The Kremmling Field Office did not receive any written comments.

Issues: No issues were identified during public scoping.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

Background/Introduction: Located within an area considered to have been the epicenter of the current MPB epidemic in Colorado, the Owl Mountain analysis area is about 6.0 miles northeast of the town of Rand. The analysis area encompasses approximately 2,440 acres of public lands administered by the BLM. Of the 2,440 acres of public lands within the analysis area, 2,148 acres are in the Owl Creek 6th Order Watershed. An estimated 167 acres along the east boundary, and 125 acres along the west boundary, are in other 6th Order Watersheds. Approximately 2,403 acres of the analysis area are forested. The forest is primarily comprised of mature, and over-mature, lodepole pine stands, although several aspen stands are scattered throughout the area. Aspen, subalpine fir, and Engelmann spruce are found in varying amounts within some lodgepole pine stands. Aspen is also found in stringers along drainages. The remaining 37 acres are considered non-forested, dominated mainly by sagebrush, with grass and various forb species.

Mature and over-mature lodgepole pine stands have experienced severe MPB infestation and mortality with approximately 85-95 percent of trees larger than seven inches DBH (Diameter Breast Height) dead or beetle-hit. Many smaller trees with five or six inch diameters have been killed as well, largely due to their proximity to larger, beetle infested trees.

Private and state lands border the southwest, west, north, and northeast boundaries of the analysis area. National Forest System lands border the south and southeast portions of the analysis area. Several of the adjacent landowners have previously removed, or are currently removing, dead trees to reduce hazardous fuels. The section of land owned by the State is surrounded by BLM-managed lands on the east, south and west sides, and has been harvested as well, most recently in 2004 when 42 acres were clearcut to remove beetle-killed lodgepole.

The USFS has recently removed hazard trees along several roads to the south and east of the analysis area on National Forest System lands. Most pertinent to this analysis, hazard trees were removed from about 4 miles of the #792 road, which becomes the BLM #2502 Road when it enters BLM-managed public lands. Hazard trees were removed from about 38.4 acres adjacent to this road.

The LaFevre Timber Sale, located south and east of the analysis area on National Forest System lands, was awarded to a purchaser in September 2012. This sale area encompasses about 488 acres of harvest units, and lies wholly outside of the Owl Creek 6th Order Watershed. Harvested trees from this sale would be hauled east and north to State Highway #14 via Forest Road #740. The USFS has scheduled the Owl Creek Timber Sale for sale in the spring of 2014. This sale of about 677 harvest acres is located on National Forest System lands immediately adjacent to the south boundary of the Owl Mountain Project Area. An estimated 436 acres of the Owl Creek Timber Sale harvest units lie within the Owl Creek 6th Order Watershed. Harvested trees from this sale would be hauled to Jackson County Road #27 through the Owl Mountain Project Area via BLM Roads #2502 and #2506. Previous sales on National Forest System lands, primarily occurring in the 1980's, harvested approximately 486 acres are within the Owl Creek 6th Order Watershed.

Two main roads provide access to, and within, the analysis area. The Owl Mountain Road (BLM #2506) extends east from Jackson County Road #27, bisecting the analysis area until it crosses the boundary and proceeds north through private land. The Upper Owl Mountain Road (BLM #2502), extends from its' junction with BLM #2506 in the northwest portion of the analysis area and proceeds south through the western portion of the analysis area until it crosses into National Forest System lands (where it is designated as Forest Road #792). Construction of these roads was completed in 1981 to provide access to the area. Additional spur roads were constructed within the analysis area in the early-to mid-1980s, to access timber sale units. While BLM #2502 and #2506 are open to the public and regularly maintained, the spur roads are gated closed and have not been maintained since the last timber sale in the mid-2000s.

Past forest management in the analysis area includes several timber sales. All of the harvest units in these previous sales, with the exception of 38 acres harvested in the Owl Mountain West Timber Sale, were located in the Owl Creek 6th Order Watershed. The first timber sale occurred in the early-to mid-1980s, and included 13 clearcut units totaling approximately 206 acres of harvest. This sale removed large trees from an estimated 1.40 miles of road corridor encompassing BLM Roads: #'s 2506, 2506-1a, 2506-3, and 2502 (see Table 1 below). This sale was followed in the late 1980's by a sale of 2 units encompassing 18 acres. All of the harvested units in these sales have regenerated into overstocked stands of approximately 11-20 foot-tall

lodgepole pine. Dwarf mistletoe is present in some of these regenerated stands, mostly around the perimeter, adjacent to mature stands. Also present in these regenerated stands are young aspen and conifer trees of other species. Aspen and subalpine fir, are found in most, if not all of the stands, either in patches or as individuals.

A commercial thinning sale of 13 acres also took place in 1988 within the boundaries of proposed cutting unit 8. This sale left approximately 300 trees per acre as growing stock.

The Owl Mtn. Salvage Sale harvested dead and beetle infested lodgepole pine from 7 units encompassing 213 acres between August 2004 and July 2007. This sale removed large trees from an additional 1.06 miles of road corridor encompassing BLM Roads #'s 2506, 2506-3, and 2502 (see Table 1 below). Data compiled from stocking surveys conducted in 2009 show that all harvest units in the Owl Mtn. Salvage Sale are overstocked with lodgepole pine seedlings. The number of lodgepole pine seedlings per acre varies from unit to unit, ranging from 800 per acre in Unit 6, to 6,617 per acre in Unit 2. All of the units also contain an aspen seedling/sapling component, generally ranging from between 100 to 700 stems per acre.

Table 1: Miles of Road Corridor on BLM-Managed Lands Cleared of Large Trees, Through Previous Timber Sales

Road #	Estimated* Length	State or Private Land Miles**	Estimated* Miles of Large Trees Removed in 1980s Timber Sales	Estimated* Miles of Large Trees Removed in 2004 Timber Sale	Estimated* Total Miles of Trees Removed
2506	4.60 miles	1.18 miles	0.33 miles	0.47 miles	0.80 miles
2506-1a	1.44 miles		0.30 miles	0.0 miles	0.30 miles
2506-3	2.13 miles		0.60 miles	0.24 miles	0.84 miles
2502	2.79 miles		0.17 miles	0.35 miles	0.52 miles
Totals	10.96 miles		1.40 miles	1.06 miles	2.46 miles

*Estimated using GIS

**Miles of BLM #2506 crossing State Land is estimated at 0.80 miles. Miles of BLM #2506 crossing private land is estimated at 0.38 miles.

Finally, 38 acres of dead and dying lodgepole pine were harvested in the Owl Mtn. West Sale in 2006/2007. This sale area lies to the west of the Owl Creek 6th Order Watershed. The 38 acre site is now occupied by a mix of aspen seedlings and saplings, and lodgepole pine seedlings, totaling about 1,300 stems per acre. Aspen seedlings and saplings comprise about 78% of that total. Stem densities vary across the unit, with fewer seedlings and saplings found in areas where thick grasses and other understory vegetation, or concentrations of slash, have inhibited the establishment of young trees.

Proposed Action: The BLM is proposing to use mechanical treatments to cut and remove dead, and beetle-hit, lodgepole pine in 15 units totaling approximately 537 acres (See map 1). All of the harvest units lie within the Owl Creek 6th Order Watershed. Dead or beetle-hit, lodgepole

pine within vegetative buffers along small drainages and perennial streams, and adjacent to roads, may be cut and left on site. Acres in these 15 units would be treated through timber sale contracts, service contracts, or by other means (e.g. stewardship contracts, BLM crews). The treatments would be implemented with conventional, ground-based logging equipment and/or by hand crews with chainsaws. It is anticipated that the activities described in the proposed action would be completed in 4-5 years, although monitoring could continue for some time after that.

The harvest units are comprised mainly of dead lodgepole pine, although scattered live trees remain. Other tree species, primarily aspen, constitute only around 4 percent of the total number of 5-inch and larger DBH, trees found within the units. Some units also contain live, small diameter (less than 5 inches DBH) lodgepole pine, as well as, varying amounts of other species (primarily aspen and subalpine fir). The emphasis is to harvest dead and dying trees within the units. Smaller diameter lodgepole pine and other conifer trees, as well as aspen, would be retained where feasible. Due to the species composition of units, they are likely to resemble clearcuts with some advanced natural regeneration after harvest.

Units 1-4, 7, 8, 11, 13, 14 and 15 are sanitation salvage units that were designed to also incorporate hazardous tree removal along access roads. Units 5, 6, 9, 10, and 12 were designed primarily as roadside hazard tree cutting units (See Table 2 below for the miles of road corridor that would be cleared of hazard trees through the Proposed Action.)

Table 2: Miles of Road Corridor on BLM-Managed Lands Cleared of Hazardous Trees, Through the Proposed Action

Road #	Estimated* Total Length	Estimated Length on State or Private Land**	Estimated* Miles of Hazardous Trees to be Removed from Road Corridors in Proposed Action
2506	4.60 miles	1.18 miles	2.62 miles
2506-1a	1.44 miles		1.14 miles
2506-3	2.13 miles		1.29 miles
2502	2.79 miles		2.27 miles
Totals	10.96 miles	1.18 miles	7.32 miles

*Estimated using GIS

**Miles of BLM #2506 crossing State Land is estimated at 0.80 miles. Miles of BLM #2506 crossing private land is estimated at 0.38 miles.

All lodgepole pine trees that are five inches DBH or greater would be cut. There are only an average of 37 live, five and six-inch lodgepole pine trees per acre in the units, generally occurring as individuals or present in groups of a few trees. Individuals and small groups of these sized trees would likely snow-load or blow down if left standing. There are even fewer larger diameter, live lodgepole pine, on a per acre basis, in the units, and most of these would also likely blow down if left standing. Smaller diameter lodgepole pine (1-4 inch DBH) could be

cut if they have been damaged, diseased or beetle-hit; if they are dead; or to reduce stand densities. Although few in number, larger subalpine fir or other conifer species that are likely to windthrow, would also be harvested. Minimum harvest diameters for these species may vary by unit but would most likely be eight or nine inches DBH.

Sound cull logs and larger diameter tops would be offered for sale as biomass, piled, or decked onsite to be disposed of at a later date. The remaining slash from harvest operations would be piled for later burning by the BLM, or lopped and scattered (i.e., a hand method of removing the upward –extending branches from tops of felled trees to keep slash low to the ground). A burn plan would be prepared and approved, and smoke permits would be obtained from the Colorado Air Pollution Control Division, prior to any pile burning. Some slash may be left onsite to provide soil protection; the depth of the slash would not exceed 24 inches.

There are 16 timber stand improvement (TSI) units totaling approximately 213 acres of approximately 25 to 30-year-old lodgepole pine. These units would be pre-commercially thinned to reduce stand densities and improve stand health. The dominant tree species in these regenerated stands is lodgepole pine, although they also contain other species, primarily aspen, with a much smaller component of subalpine fir. Selection of residual leave trees would include the consideration of species mix, dominance, form, and spacing. Spacing requirements may vary depending on desired future stand conditions and current stand densities. Thinning treatments would likely be accomplished through service contracts, stewardship contracts, or by BLM crews. The material from the thinning may be lopped and scattered or piled for burning in the winter.

Approximately 10.4 miles of existing roads would be maintained, including the portions of the Owl Mountain Road that crosses state and private lands. Road maintenance would include, as necessary, such activities as surface blading, surfacing repair, slide and slump repair, ditch cleaning, maintaining drainage structures, etc. Clearing of roadside vegetation may be required on portions of the existing roads to improve site distance, remove trees growing in ditches, or to better accommodate log truck traffic. This is particularly true of the spur roads where, in places, saplings have grown up to, and into the running surface of the roads. A culvert would need to be replaced on #2506-3, approximately 1.1 miles down the road from its junction with BLM Road #2506. The length and size of the culvert would be determined by the BLM hydrologist prior to installation. In addition, about 1.0 mile of temporary road may be constructed/reconstructed, mainly to facilitate harvesting activities by locating landings off of the road system.

In general, temporary roads would not exceed 15 percent grade and the running surface would not exceed 12 feet in width. Temporary road locations would be approved by the BLM prior to construction. When harvest operations are completed, the temporary roads would be reclaimed, unless needed for post-treatment activities. Temporary roads would be out-sloped and waterbarred, as necessary, to disperse runoff. Where necessary to prepare an adequate seedbed, temporary roads and landings would be scarified. Disturbed areas (e.g. temporary roads, landings and major skid trails) would be seeded, as necessary, with a BLM approved mixture of forbs and grasses. Logging slash may be redistributed over temporary roads, or portions thereof, to further stabilize the road or to discourage use. Temporary roads left open for post-treatment

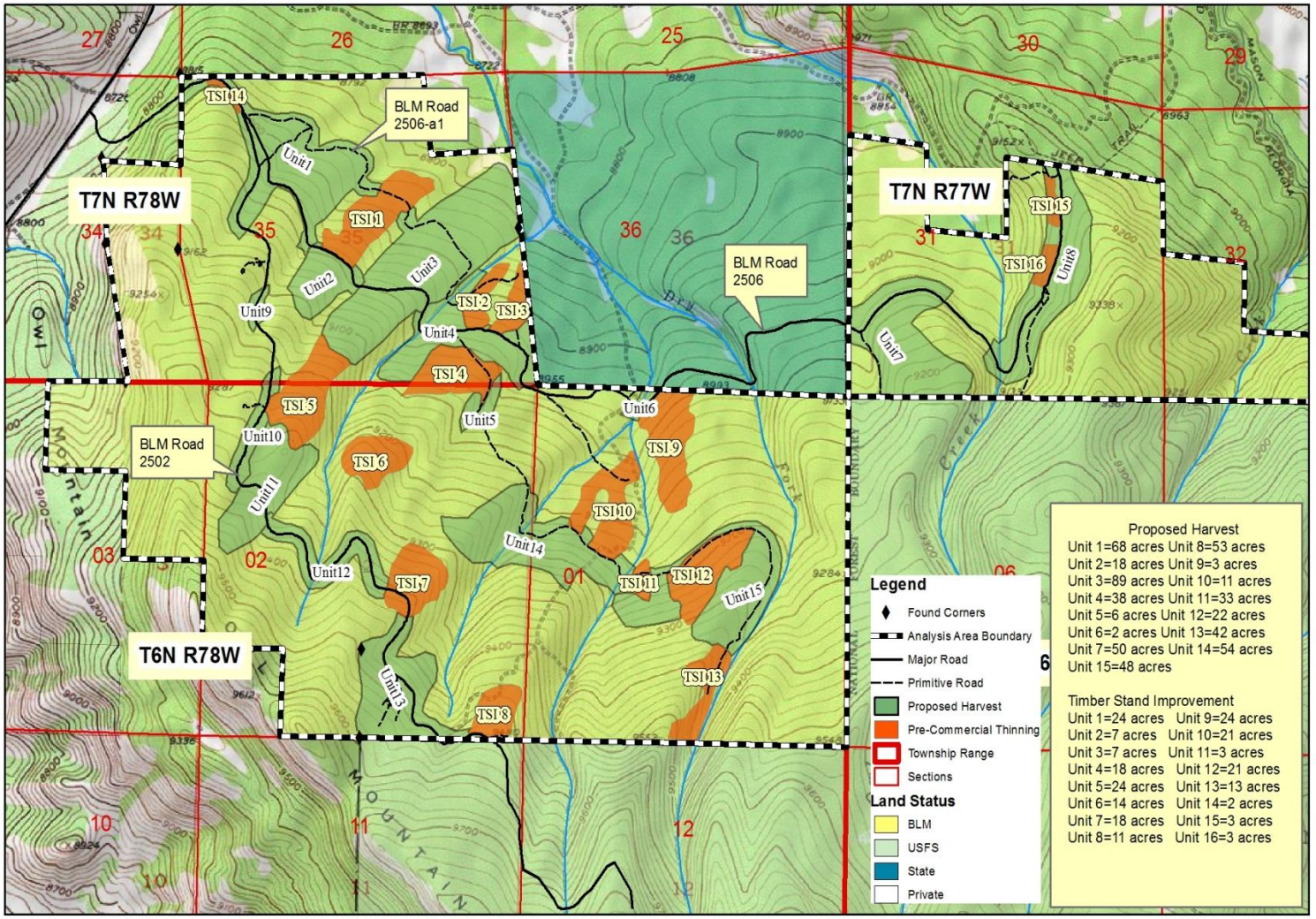
activities would be signed to restrict access and closed by BLM following completion of such work.

Post-harvest treatments would include a release and weed/thinning treatment (i.e. felling of residual undesirable live trees), and noxious weed control. The BLM would monitor disturbed areas for noxious weeds for two growing seasons after project completion. If noxious weed control is found necessary, actions would be coordinated by the BLM.

Proposed Action with Forestry Methods		
Unit	Size (acres/ miles)	Treatment Method; explanatory notes
1	68	Sanitation/Salvage Harvest
2	18	Sanitation/Salvage Harvest
3	89	Sanitation/Salvage Harvest
4	38	Sanitation/Salvage Harvest
5	6	Sanitation/Salvage Harvest/Roadside Hazard Tree
6	2	Sanitation/Salvage Harvest/Roadside Hazard Tree
7	50	Sanitation/Salvage Harvest
8	53	Sanitation/Salvage Harvest
9	3	Sanitation/Salvage Harvest/Roadside Hazard Tree
10	11	Sanitation/Salvage Harvest/Roadside Hazard Tree
11	33	Sanitation/Salvage Harvest
12	22	Sanitation/Salvage Harvest/Roadside Hazard Tree
13	42	Sanitation/Salvage Harvest
14	54	Sanitation/Salvage Harvest
15	48	Sanitation/Salvage Harvest
Total Harvest Acres	537	
Release & Weed	537	The cutting of undesirable live trees after treatment is referred to as Release & Weeding, whereby live trees that were not harvested are cut down because they would not contribute or may be a detriment to the future stand (i.e. diseased, competing with more desirable trees, damage or physical defects, etc.). All units would be assessed at sale closure. Release and Weed treatment would take place where it would benefit future stand. All acres could be treated.
Temporary Roads	1 mile	An estimated 1 mile would be constructed to facilitate harvest. This total includes new construction or improvement of existing roadbeds or two-tracks.
TSI 1	24	Pre-commercial Thinning
TSI 2	7	Pre-commercial Thinning
TSI 3	7	Pre-commercial Thinning
TSI 4	18	Pre-commercial Thinning
TSI 5	24	Pre-commercial Thinning

TSI 6	14	Pre-commercial Thinning
TSI 7	18	Pre-commercial Thinning
TSI 8	11	Pre-commercial Thinning
TSI 9	24	Pre-commercial Thinning
TSI 10	21	Pre-commercial Thinning
TSI 11	3	Pre-commercial Thinning
TSI 12	21	Pre-commercial Thinning
TSI 13	13	Pre-commercial Thinning
TSI 14	2	Pre-commercial Thinning
TSI 15	3	Pre-commercial Thinning
TSI 16	3	Pre-commercial Thinning
Total Pre-Commercial Thinning	213	

Owl Mountain Project Area



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Date: 03/07/2013
BLM, Kremmling FO
USGS Map: Gould
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No Warranty is made by the Bureau of Land Management as to the Accuracy, Reliability, or Completeness of this Data for Individual Use or Aggregate

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0 0.125 0.25 0.5 0.75 1 Miles

Design Features:

- Functioning, maintained, fences, damaged from the timber salvage operation, would be repaired by the purchaser to at least the condition of the fence prior to being damaged.

- Vegetative buffers for wetland and riparian areas would be required to protect wetland vegetation and to reduce water quality impacts within and downstream of the project area. No vehicles or large equipment would operate within the buffer. Limited surface disturbance would be allowed within the buffers:
  -50 foot buffer for small drainages (intermittent and ephemeral)
  -100 foot buffer for perennial streams

- No mechanical equipment would be allowed to travel in a wetland or riparian area. If areas must be crossed, best management practices would be required to reduce alteration of the hydrology or vegetation.

- If an active goshawk nest is located within a timber sale unit, a 1/8th mile buffer around the nest site would be required.

- Survey monuments (brass cap monuments, bearing trees, mineral claim posts, etc.) would be located, flagged and protected by BLM personnel during project layout and by purchaser during operations.

- Harvesting operations would be limited to frozen ground or soil conditions such that excessive rutting would not occur.

- Temporary road construction/reconstruction would not occur during periods of wet or frozen soils.

- Prior to moving off-road equipment (includes all logging and construction machinery except for log trucks, service trucks, pickup trucks, and similar vehicles) onto the sale area, the Purchaser shall clean such equipment of seeds, soil, vegetative matter, and other debris that could contain or hold seeds, to minimize the likelihood of spreading or introducing noxious weeds to the Contract Area. Any logging or road building equipment removed from the Contract Area during the duration of the contract must be cleaned before it is returned to the Contract Area.

- The BLM would monitor and treat the proposed project area in the event that invasive, noxious weeds become established.

- Reclaimed temporary roads, constructed/reconstructed as part of the proposed action, would be signed by the BLM as reforested or reclaimed areas to discourage use. Closure of temporary road construction/reconstruction would be monitored over the 4-5 year project period by the BLM forestry program during field assessments and the development of contracts regarding the proposed action. Other control measures, such as

fencing, would be implemented by the contractor or forestry program if initial closure methods are ineffective.

- Purchaser shall place and maintain safety signs warning of logging truck traffic on Jackson County Road #27, on either side of the junction with BLM Road #2506. Information signs shall be placed in appropriate locations in, or adjacent to, areas of harvest operations. Visitors to BLM-administered lands could then choose to utilize other areas during operations.

- Piles that are built would be no larger than 30'x30'x20' if built without a blade free of dirt. Piles would be no larger than 20'x20'x12' if built with a blade and contain dirt. Following pile burning, burned areas would be seeded. If re-vegetation is not successful after initial seeding, the area would be seeded again and mulched.

- Signs would need to be placed on Colorado State Highway #14 and Jackson County Road #27 during pile burning operations.

- While in use, each internal combustion engine including tractors, trucks, yarders, loaders, dozers, welders, generators, stationary engines, or comparable powered equipment shall be provided with at least the following:
    - One fire extinguisher, at least 5#ABC with an Underwriters Laboratory (UL) rating of 3A- 40BC, or greater. Extinguisher shall be mounted so as to be readily available for use (not locked in a tool box or chained to a seat, for example).
    - One shovel, sharp, size O or larger, round-pointed with an overall length of at least 48 inches.
    - One axe, sharp, double bit 3-1/2#, or one sharp pulaski.

- Temporary Road or area closures would be implemented to provide for public health and safety as needed.

- Log and equipment hauling would be restricted (No hauling) during opening day and weekends throughout the four major Colorado State rifle big game seasons. Hauling would also be restricted on Memorial Day, Labor Day, and associated weekends.

- No operations from approximately May 1 through June 15 annually to reduce impacts on elk calving areas. Start and end dates may vary depending on snow conditions and use of area.

No Action Alternative: Mechanical treatments to harvest dead, currently infested, and beetle/disease susceptible trees, as well as associated actions such as temporary road construction, release and weeding, and slash piling and burning would not occur. In addition, young, overstocked stands of lodgepole pine would not be thinned.

ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD: None

PLAN CONFORMANCE REVIEW: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: Record of Decision for the Kremmling Resource Management Plan

Date Approved: 1984 and updated in 1999

Decision Number/Page: 6/9

Decision Language: The planned actions will emphasize improving forest vigor and growth as well as minimizing losses caused by insects, diseases, or fire…. Intensive management activities could include timber harvesting techniques,…stand improvement, precommercial thinning, and commercial thinning.

AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

Standards for Public Land Health: In January 1997, the Colorado BLM approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, special status species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because a standard exists for these five categories, a finding must be made for each of them in an environmental analysis (EA). These findings are located in specific elements listed below.

Cumulative Effects Analysis Assumptions: Cumulative effects are defined in the Council on Environmental Quality (CEQ) regulations (40 CFR 1508.7) as "...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." Table 1 lists the past, present, and reasonably foreseeable future actions within the area that might be affected by the Proposed Action; for this project the area considered was the Natural Resources Conservation Service (NRCS) 6th Level Sub-watershed (Owl Creek —11,900 acres or so…) However, the geographic scope used for analysis may vary for each cumulative effects issue and is described in the Affected Environment section for each resource.

Table 1. Past, Present, and Reasonably Foreseeable Actions

Action Description	STATUS		
	Past	Present	Future
Livestock Grazing	X	X	X
Recreation	X	X	X
Invasive Weed Inventory and Treatments	X	X	X
Spring or Water Developments	X	X	X
Oil and Gas Development: Well Pads Access Roads Pipelines Gas Plants Facilities			X

Action Description	STATUS		
	Past	Present	Future
Vegetation Treatments	X	X	X

Affected Resources:

The CEQ Regulations state that NEPA documents "must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail" (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an environmental assessment (EA). Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. Table 2 lists the resources considered and the determination as to whether they require additional analysis.

Table 2. Resources and Determination of Need for Further Analysis

Determination[1]	Resource	Rationale for Determination
Physical Resources		
PI	Air Quality	See the Air Quality Section of this document.
NI	Geology and Minerals	There will be no impact to geologic or mineral resources from the Proposed Action or the No Action Alternative. A Mining Claim Geographic Report from the LR2000 database on 9/3/13 shows there are no pending or active mining claims within the project boundaries.
PI	Soil Resources*	See the Soil Resources Section of this document.
PI	Surface and Ground Water Quality*	See the Surface and Ground Water Quality section of this document.
Biological Resources		
NI	Wetlands and Riparian Zones*	The Proposed Action avoids all riparian and wetland zones, buffering them from surface disturbances. There are no expected impacts to these areas. Under the No Action Alternative, existing conditions would be expected to continue unless a disturbance occurs.
PI	Vegetation*	See analysis under Forest Management and Forest and Woodland Vegetation
PI	Invasive, Non-native Species	See analysis
PI	Special Status Plant and Animal Species*	See analysis.
PI	Migratory Birds	See analysis.
PI	Aquatic Wildlife*	See analysis.
PI	Terrestrial Wildlife*	See analysis.
Heritage Resources and the Human Environment		
NI	Cultural Resources	In the area of the proposed action, a Class III inventory (BLM #CR-11-29) was completed. During the survey two historic sites were located and recorded, they are site 5JA2131.1 a historic ditch

Determination[1]	Resource	Rationale for Determination
		segment and 5JA2132.1 a historic road segment. Both site segments 5JA2131.1 and 5JA2132.1 are non-contributing to either sites potential eligibility status. No avoidance is necessary. The project is a **no effect**, there are **no historic properties affected**.
NI	Paleontological Resources	The proposed action lies within the North Park Formation that contains mammals that include the horse. The Potential Fossil yield Classification (PFYC) is 4 to 5; a condition 3. The probability for impacting significant paleontological resources is moderate to high, and is dependent on the proposed action. The bedrock unit has high potential, but an extensive protective layer of soil and thick vegetation would lessen or prevent potential impacts to the bedrock. A geologic formation sensitive for fossil resources is present, but would not be impacted by the proposed project. BLM standard "discovery" stipulation is part of the environmental assessment and is to be attached to any authorization allowing this project to proceed.
NI	Native American Religious Concerns	Tribal consultation was initiated on February 17, 2011, and to date no tribe has identified any area of traditional cultural or spiritual concern.
NI	Visual Resources	The proposed project is within a Visual Resource Inventory (VRI) Class II area. Treatment areas would be somewhat visible from County Road #27 and US Highway #14, however, by using the techniques listed above in the proposed action; the visual impacts would be short term and would decrease over time. There have been a number of clear cuts on BLM managed lands as well as USFS lands adjacent to BLM. The USFS clear cuts are more visible due to the topography of Owl Mountain. The proposed actions would be difficult to see from US Highway #14 due to the orientation of Owl Mountain to the highway.
NI	Noise	There would be short-term increases in noise during timber management and from vehicle travel accessing the area but would only be noticeable in the immediate area where activities are occurring.
NI	Hazardous or Solid Wastes	There are no quantities of wastes, hazardous or solid, located on BLM-administered lands in the proposed project area, and there would be no wastes generated as a result of the Proposed Action or No Action alternative.
PI	Fire Management	See analysis
NI	Social and Economic Conditions	There would not be any substantial changes to local social or economic conditions.
NP	Environmental Justice	According to the most recent Economic Census Bureau statistics (2009), there are minority and low income communities within the Kremmling Planning Area. There would be no direct impacts to these populations.
PI	Cadastral	Must Protect Public Land Survey Monuments that fall in the project area as required.
Resource Uses		
PI	Forest Management	See analysis.
NI	Rangeland Management	Timber operations would not impact livestock grazing.

Determination[1]	Resource	Rationale for Determination
NI	Floodplains, Hydrology, and Water Rights	The Proposed Action is located in an upland area, outside of the floodplain. Potential impacts, if any, to Owl Creek are discussed in the Water Quality section. There are no other potential impacts to hydrology or water rights. Under the No Action Alternative, there would be no change from existing conditions.
NI	Realty Authorizations	There is one road ROW issued to the Forest Service (COC-36376), one road easement issued to the BLM (COC-30129) which gives the BLM access across private property. BLM has an easement with the State of Colorado (COC-30280) to access across State land. The Forest Service has applied for a ROW with the BLM to use and maintain BLM roads #2502 and 2506. All impacts to the roads would be the responsibility of the holder of ROWs or easements. The amount of maintenance would be commensurate with use.
PI	Recreation	See analysis.
PI	Access and Transportation	See analysis.
NP	Prime and Unique Farmlands	There are no Prime and Unique Farmlands within the project area.
Special Designations		
NP	Areas of Critical Environmental Concern	There are no designated Areas of Critical Environmental Concern in the proximity of the proposed project area.
NP	Wilderness and Lands with Wilderness Characteristics	There are no designated Wilderness or Wilderness Study Areas in the proximity of the proposed project area. The areas do not possess Wilderness Characteristics due to it having permanent impacts to naturalness and its size being less than 5000 acres nor is it of sufficient size as to make practicable its preservation and use in an unimpaired condition.
NP	Wild and Scenic Rivers	There are no Wild and Scenic Rivers in the project area.
NI	Scenic Byways	The Cache la Poudre North Park Scenic Byway runs on US Highway #14 from Walden to Fort Collins. Owl Mountain is visible from Highway #14 for about 10 miles. The majority of those 10 miles can only be seen from the highway were there has been clear cuts adjacent to Highway #14 for roadway safety. The orientation of Owl Mountain makes seeing the proposed treatment areas difficult. The Rawah Wilderness Area is to the east of Highway #14 with dramatic peaks. The majority of the travelers are looking towards the Rawah Wilderness Area may only glance to the west and Owl Mountain. It is unlikely the average person would notice the proposed actions to the west of Highway 14.

[1] NP = Not present in the area impacted by the Proposed Action or Alternatives. NI = Present, but not affected to a degree that detailed analysis is required. PI = Present with potential for impact analyzed in detail in the EA.
* Public Land Health Standard

AIR QUALITY

Affected Environment: The proposed action is located within the southeastern portion of North Park. There is little air quality data for the North Park area, but it is generally considered to be in compliance with the National Ambient air quality standards. North Park is sparsely

populated with little industry. Primary emission sources are vehicle travel on unpaved roads, woodburning stoves, cattle ranches, and some oil and gas activity, including the flaring of wells.

The mountains surrounding the park contain several Class 1 Prevention of Significant Deterioration (PSD) areas. Class 1 PSDs are areas where air quality is the most stringently protected, restricting actions that might affect existing quality. The Owl Mountain Project area, being located in the southeastern portion of the park, is near three Class 1 areas: Rocky Mountain National Park, the Never Summer and the Rawah Wilderness Areas. The prevailing wind patterns are from the west-southwest. The Owl Mountain area is located approximately 12 miles northwest/west of Rocky Mountain National Park, nine miles northwest of the Never Summer Wilderness Area, and ten miles west/southwest of the Rawah Wilderness area, Only the Rawah Wilderness Area is located downwind of the project area.

Walden is the largest town in the park and is 16 miles northwest of the project area. It contains the smoke sensitive areas or receptors for the park, including an airport, medical clinic, and school. It is unlikely however, that smoke from the project area would affect the town. It is also unlikely that smoke would concentrate in the area of Rand, a town six miles southwest of the project. The small town of Gould is four miles to the east of Owl Mountain, and could receive some smoke from the proposed burns, depending on wind patterns. Smoke could be visible from Gould or Rand if pile burning were done.

Prior to the proposed burning of piles, a Prescribed Fire Burn Plan would be submitted to the state of Colorado, detailing what best smoke management techniques would be utilized to minimize smoke and emission impacts. The Burn Plan details the expected emissions load and smoke duration and the conditions that must exist at the time of ignition. The State issues a permit with the appropriate conditions on the prescribed burn. The BLM verifies that their "actions comply with all procedural and substantive requirements contained in state and local air pollution regulations" and that "no violation of any ambient air quality standards" would occur (Colorado Air Quality Control Commission, Regulation No. 9). If the dispersal conditions deteriorate during the burn, the BLM must be able to suppress the burn if they are in noncompliance with the permit.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Equipment and vehicles involved in timber treatments emit particulate matter, nitrogen oxides, organic compounds, carbon monoxide, sulfur oxides, and greenhouse gas pollutants. These emissions are considered to be of small quantity and of short duration. Slash pile burns produce particulate matter, nitrogen oxides, organic compounds, carbon monoxide, sulfur oxides, and greenhouse gas pollutants. A large portion of particulate matter emissions produced during prescribed burning is "lifted" by convection into the atmosphere where it is dissipated by horizontal and downward dispersion. At distances greater than five miles from the Project Area, the air concentrations for these emissions are expected to be small. Prevailing winds would generally carry emissions to the north, northeast. Pollutant concentrations are reduced by atmospheric mixing, which depends on weather conditions such as temperature, wind speed, amount of sunlight, and the movement of high and low pressure systems and their interaction with the local topography, for example, mountains and valleys. Normally, temperature decreases with altitude. When a colder layer of air settles under a warm layer, however, it produces a temperature inversion, impeding atmospheric mixing and pollutants

may accumulate near the ground. Inversions can become sustained under a stationary weather system coupled with low wind speeds.

Pile burning is generally done during the winter months, when there is adequate snow cover on the ground. Localized concentrations of smoke may occur in adjacent drainages and low lying areas, such as the Owl Creek valley, during prescribed burning operations. Timing of all prescribed burning would be dependent on weather and wind conditions to help reduce the amount of residual smoke to the nearby landowners, the town of Gould, and the Rawah Wilderness Area. Symptoms from short-term smoke exposure can range from scratchy throat, cough, irritated sinuses, headaches, and stinging eyes. Persons with asthma, emphysema, congestive heart disease, and other existing medical conditions can have more serious reactions. Generally smoke from pile burning is short-term, and does not persist.

A 1995 state study concluded that federal prescribed fire activities infrequently impact visibility in Class 1 areas, and even then, only temporarily. If federal activities did start resulting in degraded air quality, additional restrictions would be imposed in the burn permits.

Cumulative Effects: Emissions from vehicles and harvest equipment are short-term and do not persist after the action. If proposed USFS timber sales are being removed concurrently with the BLM's proposed units, there could be a larger increase in dust and emissions, but it would still be a small quantity of short duration. The USFS and BLM pile burning would be permitted and regulated by the state's air quality division, but the two federal agencies could try to use the same days to burn piles, creating larger amounts of smoke and emissions. The use of timber harvest to reduce fuel hazard and loading could improve long-term forest productivity and, therefore, reduce the risks and consequences of a major wildfire.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, there would be no impact to existing air quality, unless a wildfire occurred in the project area. Wildfires generally emit a larger amount of pollutants than prescribed fires, due to the size and intensity of the burn, but the same pollutants. Impacts to air quality from wildfires are closely related to the amount of biomass material consumed (surface and ladder fuel loads) and atmospheric conditions. Emissions from a wildfire may affect Class 1 and regional visibility, but do not affect long term air quality.

Cumulative Effects: If the BLM decided not to treat the proposed acres, there would still be emissions generated from USFS timber activities. It is unlikely that the omission of the BLM lands would have any measurable decrease in these emissions.

Mitigation: None.

SOIL RESOURCES

Affected Environment: Soil information for the project area comes from the Jackson County Soil Survey (NRCS), which is not intended for site specific information, but general soil

mapping units across the landscape. To supplement the information, a ten meter digital elevation map, and the State of Colorado's Landslide Hazard maps were also used. The various timber units within the project area have mean slopes that range from 11 to 16.9 percent. The entire project area's mean basin slope is 13.6 percent. In timber units where the actual slope ranges from 9-20 percent or less, the published soil survey indicates a soil mapping unit with slopes 25-50 percent. Land use suitability discussions from the soil survey may predict more limitations due to these steeper slopes than the actual field slopes. From field observation, the terrain consists of a series of flat benches connected by gentle slopes. There are some areas of large basalt outcrops and stones scattered throughout the project area.

The Jackson County Soil Survey maps most of the project area as Nokhu loams, 0 to 25 percent slope. The soils formed in moderately fine textured glacial outwash and alluvium. It is very probable that there are inclusions of various soils within the project area due to the glacial and alluvial depositional processes.

Noku loams have a duff layer that protects the soil surface and slows down the water permeating the soil. The surface loam texture changes with depth, and clay loam soil textures are approximately two feet below the surface. The mapping unit has moderate limitations for the construction of haul roads and landings and for harvest equipment operability, mostly due to the soil's low strength. Natural surface roads require special design and extra maintenance due to the mapping unit's low strength and slopes. The erosion hazard is rated as moderate due to the slope and low strength, which may require erosion control measures. The soil mapping unit is rated as having only slight limitations for seedling mortality and windthrow hazards. The loam texture and percent rock fragment result in a low potential damage prediction resulting from wildlifires.

The lower portions of the drainages are mapped as Mord loams, 4 to 15 percent slopes, which formed in glacial till. These soils are not forested, and tend to have a higher percentage of rock fragments with textures going from gravelly clay loam (16-21 inches) to gravelly light clay (21 to 34 inches). Mord loams are also rated moderately suited for haul roads and landing construction due to low strength. The soil is rated as having low potential for damage by fire due to the soil's dominant texture and the percent rock fragments.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The Proposed Action would result in a portion of the project area having some surface disturbance as equipment is used to access, cut, and skid the trees out. The actual amount of disturbance would vary depending on the machinery used, but skid trails and temporary roads would disturb or remove duff layers, exposing soils to displacement and erosion. Some scarification is needed, however, to create a seedbed for coniferous seed germination and survival. Depending on the soil moisture during operations, repeated traffic can compact soils, reducing the infiltration rates and increasing the rate of runoff.

Using the Forest Service's interface with WEPP (Water Erosion Prediction Project), the expected soil erosion from removing the vegetative overstory was modelled. Due primarily to the gentle slopes of the units, there was no predicted increase in erosion or runoff, even if the understory canopy was input as "poor". Skid trails and roads, however, were predicted to have soil losses.

Using the model's road component, a 1000 foot length of BLM road #2506-a1, in an unrutted condition, would lose 87.81 lb. from the road prism under low traffic volumes. If the amount of use increased to a "high" level and the road surface was rutted, the modelled erosion increased to 545.50 lbs road prism erosion. The actual amounts may or may not accurately reflect the field conditions, but the relative change indicates the importance of road maintenance and adequate drainage design to prevent runoff from eroding the roads. The required road system is in place, with approximately eleven miles of road. This road density does not represent a large source of soil loss within the project area, and field review of the existing culverts and drainages has not indicated existing areas of accelerated erosion and sediment transport. The proposed action includes not using the roads during periods of wet soil conditions which would result in ruts. The project would only require temporary roads (estimated at less than one mile) and skid trails constructed. Avoiding the steeper areas, installing adequate drainage and closing the roads when possible would limit the soil impacts of these roads and trails. Scattering slash to provide soil protection and to help detain runoff on roads and trails after a unit is treated would also help provide soil protection from displacement and help detain runoff, encouraging infiltration into the soil and reducing soil transport.

The piling and burning of slash can create areas of sterilized soils, depending on the intensity of the burn. These burn piles can impact the seedbanks, soil biota, and the soil's water holding capacities, resulting in delayed native plant recovery. Winter burning of the piles is generally done to reduce the potential for a wildfire, but that also reduces the heat of the piles. Standard operating procedures are to reseed burn pile areas to prevent weed infestation and reduce soil loss by wind and water erosion. If the piles burn completely and the first year after the seeding does not have good vegetative response, then the burn scars should be reviewed for additional actions. If needed, the areas should be reseeded and a wood mulch of approximately 1.5-2.5 inches depth should be spread over the site. This would help reduce summer temperatures, improve soil moisture, and provide a carbon source to stimulate soil microbes in their uptake of soil nitrogen.

Cumulative Effects: The project area includes several past timber cuts, where harvest activities have included winter and summer logging with various logging equipment. The portion of the 6th order watershed that encompasses the BLM project area, state land, and USFS lands is 5,828 acres. Using aerial photography, approximately 35 percent of the area had been visibly harvested, although most of the areas showed established forest regeneration. The USFS's proposed sales and this proposed project would increase the intensively managed acreage to 43 percent of the drainage, with approximately 20 percent of the drainage's forested acreage being in an early seral stage of shrubs and grass vegetative cover. The amount of existing undergrowth and litter, along with the revegetation of units and trails, reduces the amount of exposed soil in these treated areas. The existing roads, including those which have revegetated after previous timber treatments, would receive increased traffic, including log trucks hauling timber off of both BLM and USFS lands. Increased soil erosion from skid trails, temporary roads and haul roads would be expected.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, these proposed treatments would not be done. Existing soil conditions would be expected to continue unless some other

event occurred. In using the Fire interface (USFS) for WEPP, a high severity fire increased the chance of soil erosion by about 10 percent, with the Soil Survey predicting low soil damage by fire. This would mean fire damage is unlikely to nutrient, physical, and biotic soil characteristics by a fire intense enough to remove the duff layer and consume the organic matter in the surface layer. The actual impact to soils would be dependent on the fire's and site's conditions if and when a fire occurred.

Cumulative Effects: Some increase in soil loss could still occur under the No Action Alternative from the proposed USFS timber treatments. Some equipment and vehicles would use the BLM roads to conduct these activities, potentially increasing the soil erosion from the roads.

Mitigation: None

Finding on the Public Land Health Standard #1 for Upland Soils: Most of the proposed action is located within grazing allotment #7032 which has been assessed for land health standards. The area is considered to be meeting Standard #1, with no known areas with accelerated erosion or soil concerns. The Proposed Action could result in small localized areas of increased soil erosion (such as a skid trail), but overall would open the forest floor to increased sunlight, which would help increase the vegetative ground cover. Increased ground cover benefits the soil's nutrient and water cycling. Short term impacts of vegetative treatments would be reduced with the proposed design features.

The No Action Alternative would continue existing soil conditions, although some increased soil erosion could occur due to the increased road traffic from USFS treatments. These conditions would continue unless another disturbance occurs.

SURFACE & GROUND WATER QUALITY

Affected Environment: The Proposed Action is located within the Owl Creek 6th order watershed, which is tributary to the Michigan River in the Upper North Platte Basin. The state of Colorado has classified tributaries to the Michigan River for coldwater class 1 aquatic life, recreation, water supply, and agriculture uses. There are no identified water quality concerns for Owl Creek or the Michigan River, and they are considered to be fully supporting their designated uses.

A little more than 4,100 feet of Owl Creek is on the BLM lands, and it flows between the proposed timber units 7 & 8. The majority of the public lands on Owl Mountain are tributary to ephemeral drainages that drain to the northeast into Dry Fork (aka Dry Fork Owl Creek). Three of the drainages have had small reservoirs built to provide livestock water from the collected snowmelt and runoff. There are also two developed springs and one well; all are outside of the proposed timber units. The drilling log for the well indicated water was more than 300 feet from the surface and would not be impacted by the proposed action.

Owl Creek is a small perennial stream about three feet wide and a small base flow of less than 1 cfs. The willow community provides good stream cover to a rocky channel with abundant log jams. Due to the limited BLM ownership, water quality data is limited, but available data has shown a low electrical conductivity typical of forested streams. The USFS has a longer segment of Owl Creek and has assessed the watershed condition on and off the forest lands. They rate the watershed as FAR (functioning at risk) with a good rating for riparian condition, water quality, flow, and habitat condition. The FAR rating is primarily due to the condition of forest cover and the aquatic biota, which are both rated poor. The aquatic biota, however, is rated poor only because the stream does not contain native fish species. Roads and trails within the entire watershed are rated as fair, based on the open road density, road maintenance, mass wasting, and the roads' proximity to water.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Harvesting timber can result in increased soil compaction by equipment, which can increase runoff and potentially transport increased sediment and contaminants to the receiving drainages. Exposed and disturbed soils can be eroded and deposited in surface waters, degrading aquatic habitat and surface water quality. Generally timber harvests have the potential to also increase runoff by removing the lodgepole pine, which can uptake large amounts of water. The proposed timber harvests, however, involve dead lodgepole pine. Once a lodgepole pine's needles turn red, water uptake is stopped. The proposed treatment areas have already experienced the increases in soil moisture due to the lodgepole pine mortality. Stands that have lost their needles no longer intercept snowfall that can be lost to sublimation, also increasing the potential soil moisture. Harvesting the units can open up the understory to increased sunlight, improving vegetative response to the increased soil moisture. The small clear cut units also can "package" snow, helping store the moisture for more gradual snowmelt.

The proposed clear cuts and thinning units were run through GeoWEPP and WEPP (water erosion prediction project) models to predict potential sediment yield from the treatments. The GeoWEPP model predicted that runoff could double after harvest, with the sediment yield increasing four times over existing conditions. The total yield, however, was still only 0.004 tons/acre, which is much less than the soil's tolerance for erosion without losing productivity and is considered negligible. Due to the gentle slopes and the required buffers adjacent to drainages, the change in vegetative cover did not predict high erosion rates and sediment transport did not travel past the buffers. The minimum buffer widths of 50 and 100 feet appeared adequate to protect the channels, although under heavy traffic levels with rutted road conditions, buffer widths of 70-100 feet were necessary to keep sediment loads from reaching the drainage in steeper areas (slopes > 11%). Due to the amount of vegetation and woody debris in the ephemeral drainages, and the distance to perennial water, if any sediment did reach a drainage, it would be expected to be deposited and retained rather than transported to Owl Creek itself.

Cumulative Effects: The entire forest in the Owl Mountain area, including state, USFS, private, and BLM primarily consists of dead lodgepole pine trees. The trees are no longer taking up water which increases the soil moisture and the lack of needles results in an earlier runoff peak than what the area usually experienced with a healthy forest. Under the Proposed Action, the BLM and USFS would be harvesting an additional 8 percent of the timbered acreage.

Initially this could result in increased sediment deposition, which on the BLM land would mostly occur in ephemeral drainages. The major contributor to the sediment would be the increased traffic on the roads, and the creation of skid trails and a few temporary roads. The required buffers and road requirements would help reduce this potential, and after a growing season or two, the resulting vegetative response in the understory would drop sediment loads to pre-logging or lower levels. The proposed treatments could also reduce the risk of large catastrophic fires that could result in more water quality impairment than the proposed action.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, the existing water quality and hydrology would be expected to continue. Some increased sediment transport could possibly occur from the USFS actions upstream and their use of the BLM roads for logging activities. The USFS actions also require water quality protection through the use of vegetative buffers along streams and restricting operations from compacting or rutting soils.

Cumulative Effects: Any increase in sedimentation would be expected to be of short duration. The Forest Service's portion of the watershed would have increased vegetative diversity and understory cover and reduced wildfire risk, while the BLM administered lands would continue to be at a higher risk of fire.

Mitigation: None.

Finding on the Public Land Health Standard #5 for Water Quality: The Proposed Action would occur within a 6th order watershed that is considered to be meeting the land health standard for water quality. Although the vegetative treatments and associated traffic could potentially impact the water quality, it would be of short duration and is not expected to cause even temporary impairment of the designated uses. In the longterm, water quality would be maintained or even improved by the increased vegetative ground cover within the treatment units. Under the No Action Alternative, there could also still be some short term sediment increases from non-BLM actions. The BLM administered lands would remain at risk for more measurable, and of longer duration, water quality impacts due to the wildfire risk.

FOREST MANAGEMENT AND FOREST & WOODLAND VEGETATION

Affected Environment: The units identified for sanitation/salvage harvest in the proposed action are typical of the lodgepole pine stands in the area. Larger diameter (seven inches DBH and greater), mature and over-mature, lodgepole pine trees make-up approximately 78.0 percent of the trees in these harvest units. Five and six-inch DBH, lodgepole pine trees constitute an additional 18.3 percent of the trees within units. Analysis for the previous Owl Mountain Beetle Salvage Sale in the mid-2000s, estimated the number of serotinous cones, as a percentage of total cones in the area, at greater than 90 percent. In other words, cones may remain on the tree without opening for one or more years. Cones open and seeds are shed when heat is provided by fires or hot and dry conditions. Although there may be some non-serotinous (i.e. open) cones on scattered live trees in the stands, or in the 25-30 year-old stands resulting from previous harvest, reforestation in the area would be almost exclusively dependent on the serotinous cones

remaining on standing, dead trees. The seed in closed cones on standing trees, or on fallen trees and branches that are not in close proximity to the ground, remain viable for years. Cones will open once they are on the ground. In general, seed is not stored in the soil. Seed on the ground is vulnerable to seed eating rodents or damping-off fungi which may infect the seed.

As discussed above, aspen and other conifer species are present in the analysis area, however they are a marginal component in the units themselves. Within the harvest units, aspen, and conifer species other than lodgepole pine, comprise only 3.3 percent and 0.4 percent, respectively, of the total number of trees equal to, or greater than, 5 inches DBH.

Like other mature and over-mature lodgepole pine stands in the area, the trees in these units have been heavily infested with MPB, with rates of mortality similar to those discussed in the purpose and need identified for this analysis. Cruise data reveals that approximately 88 percent of the larger diameter (seven inches DBH and greater), lodgepole pine trees are dead or beetle-hit. The same date show that about 41 percent of the five and six-inch DBH lodgepole pine have also been killed or attacked by the beetle. There are, on average, 37 live five and six-inch lodgepole pine trees per acre in the units, generally distributed through the units as individuals, or in small groups of a few trees each. Most lodgepole pine in the sanitation/salvage harvest units have transitioned from the red-needle stage to the older dead, or grey, stage. Red-needled trees are present as individuals or in patches, and individual green trees exist, mainly as scattered individuals or in patches of smaller diameter trees. Lodgepole pine seedlings are present in the understory of most dead lodgepole pine stands in the area. Overall, however, the number of seedlings found on a per acre basis is relatively sparse, most likely due to site conditions not conducive to successful regeneration.

Currently, there is a reduced probability of active crown fire occurring in the area, as compared to pre-outbreak condition, due to the reduction in canopy bulk density. There has been an increase in the depth of litter and duff layers underneath these older, dead lodgepole pine stands as pine needles and small diameter branches have accumulated on the forest floor. Increases in available nutrients, water and sunlight reaching the forest floor has resulted in an increase in grass and forb production. Since most of the beetle-killed trees are still standing, the quantity of larger diameter fuels on the forest floor has not changed substantially since pre-outbreak condition.

The pre-commercial thinning units were clearcut in the mid 1980's. These regenerated stands are approximately 25 to 30 years old, and are mainly comprised of lodgepole pine, although other species occur as well. Dwarf mistletoe infestation is present in some of these regenerated stands, mostly along the edges adjacent to mature stands. Data from surveys conducted in 2011 show that these harvested units have regenerated into overstocked stands of approximately 11-20 foot-tall lodgepole pine (weighted average is 14.2 feet). The number of stems per acre varies considerably both within, and between, regenerated stands. There are, on average, 2,028 lodgepole pine saplings per acre in the regenerated stands, ranging from 400 stems per acre in Unit TSI 11, to 4,520 stems per acre in Unit TSI 4. Lodgepole pine saplings in overstocked stands tend to lose their lower branches (a process known as self-pruning) and these stands have begun that process. The average self-pruning height in these stands range from about one to four feet.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Under the Proposed Action, lodgepole pine, five inches and greater DBH, would be cut within the sanitation/salvage harvest units. Other conifer trees, primarily sub-alpine fir, with a DBH of eight or nine inches and greater, would also be harvested.

Within these units, the harvest of beetle-killed pine would facilitate successful natural stand regeneration by exposing bare mineral soil and allowing more sunlight to penetrate to the forest floor. Harvest practices would result in cones being distributed over the site, in close proximity to mineral soil where high surface temperatures would open the cones. In general, disturbed mineral soil provides the best seedbed for the successful germination and survival of lodgepole pine seedlings. Adequate soil moisture is necessary for germination, as well as seedling survival, during the first few weeks following germination. Since mineral soil tends to dry out less quickly than organic seedbeds, seedlings are better able to withstand dry conditions. Natural regeneration is expected to occur within harvest units and should result in fully stocked stands of lodgepole pine seedlings. Therefore, seeding or planting of harvest units is not anticipated. Salvage harvest would also promote aspen suckering in areas where aspen currently exist.

Surface fuel loading would increase in the short-term with the addition of slash but that increase would be reduced by slash treatments identified in the proposed action. Following treatment, winter snow loads on remaining slash would further reduce slash depth. Increased, long-term fuel loading as a result of falling trees, at least within the units, would be avoided as a result of harvesting dead, infested and susceptible trees.

Cutting dead trees in Harvest Units 1-15 would remove hazard trees adjacent to BLM Roads #'s 2502, 2506, 2506-a1, 2506-3. The threat of falling trees to individuals using these roads would be reduced on approximately 7.32 miles of road segments encompassed by, or adjacent to, these units. There would be a decreased cost associated with maintaining the roads as a result of implementing the proposed action.

Road maintenance activities would stabilize and improve the condition of the spur roads that have not been regularly maintained since the last harvest entry and would augment the periodic maintenance that has occurred on BLM Roads #2502 and #2506. The functionality of ditches and other drainage structures would be improved or restored by the removal of vegetation and other material that currently interferes with the proper flow of runoff. Surface blading and repair would reduce the number of depressions, soft spots, and potholes, thereby maintaining or enhancing road integrity.

Reducing stand densities in overstocked stands of young lodgepole pine would reduce competition for sunlight, water, and nutrients, resulting in increased vigor of remaining trees. Removing trees with dwarf mistletoe would improve the health of the stands. Remaining trees would likely retain their lower branches for a longer period of time than if the stands were left in an overstocked condition. Treating units of mature beetle-killed timber adjacent to these young

thinned stands would help protect remaining young trees on these sites from high severity fires. These long-term improvements in forest health would eventually produce more forest products and products of higher quality.

Cumulative Effects: As discussed in the beginning of this document, several of the adjacent landowners have conducted, or are planning to conduct, harvest operations to remove beetle-killed and infested trees from their properties. Implementation of this proposed action would result in a minor increase in the total number of acres of beetle-killed lodgepole pine that have been, or would be, harvested in the area. Due to a number of factors (e.g., access, location of affected stands, the intensity and extent of the epidemic, deterioration rates, economic and market-related considerations, other resource concerns, etc.), the majority of beetle-killed stands on public and private lands would remain untreated.

The biggest factor affecting forest vegetation in the recent past has been the MPB epidemic. As discussed in the background and affected environment sections of this EA, all lodgepole pine stands on BLM-managed lands contain large numbers of beetle-killed trees, with the exception of about 475 acres of young regenerated stands. Stands that were harvested in the mid-1980s are about 25-30 years old. Stands that were harvested in the mid 2000's are 6 to 8 years old. Because clearcut was the harvest/regeneration method, these stands contain very few, if any, dead, standing trees. Implementation of the proposed action would add an additional 537 acres where the risk of being struck by a falling tree would be much reduced.

Proposed treatment units and previous harvest units encompass just about the entire length of BLM Road #'s 2502, 2506, 2506-a1, and 2506-3 on BLM administered lands. Implementation of the proposed action further minimizes the risk of falling hazard trees along these roads, reducing the potential for persons or property being struck by a falling tree.

Table 3: Miles of Road Corridor on BLM-Managed Lands Cleared of Large Trees Through Previous Timber Sales and the Proposed Action.

Road #	Estimated* Length	State or Private Land Miles**	Estimated* Miles of Large Trees Removed in 1980s and 2004 Timber Sales	Estimated* Miles of Hazardous Trees to be Removed in the Proposed Action	Estimated* Total Miles of Trees Removed from BLM-Managed Public Lands
2506	4.60 miles	1.18 miles	0.80 miles	2.62 miles	3.42 miles
2506-1a	1.44 miles		0.30 miles	1.14 miles	1.44 miles
2506-3	2.13 miles		0.84 miles	1.29 miles	2.13 miles
2502	2.79 miles		0.52 miles	2.27 miles	2.79 miles
Totals	10.96 miles		2.46 miles	7.32 miles	9.78 miles

*Estimated using GIS

**Miles of BLM #2506 crossing State Land is estimated at 0.80 miles. Miles of BLM #2506 crossing private land is estimated at 0.38 miles.

The regeneration of harvested sites would result in an increase in the number of fully stocked forested acres in younger age classes. Approximately 42 percent of the forested acres within the analysis area would be fully stocked with lodgepole pine seedlings and saplings. Pre-commercial thinning of overstocked sapling units would promote healthy, vigorously growing stands, thereby increasing long-term stand resilience to future disturbances. These thinned stands would also provide some level of age and size class diversity in the lodgepole pine forest component. Planned and past treatment of federally-managed lands within the Owl Creek 6th Order Watershed would increase to approximately 1900 acres.

The existing road spurs have had only limited maintenance since they were constructed and used for harvesting timber in the mid-1980s, or used again to harvest timber in the mid-2000s. Regular road maintenance and road improvement activities associated with timber harvest would improve road drainage and decrease the potential for surface erosion. The likelihood of large trees falling and blocking roads would be reduced along additional miles of road through implementation of the proposed action, thus lowering future maintenance costs.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, the harvest of dead and dying trees would not occur. More sunlight would reach the forest floor as needles, limbs, and cones, continue to fall from trees in the red and grey stages.

Live understory trees would increase in growth and there would be an increase in ground vegetation. Where aspen exists, there would likely be an increase in aspen sprouting. Lodgepole pine is a shade intolerant species and successful regeneration of the stand generally requires exposure of the site to sunlight and sufficient exposed mineral soil. Germination would occur on litter and duff but this material tends to dry out faster than mineral soil and adequate moisture is critical for seedling survival during the first few weeks following germination. Additional regeneration of the site may occur if serotinous cones fall on favorable sites and release seed, and if adequate soil moisture is present for several weeks following germination. Full occupation of the site may be restricted, at least in the short-term, by a lack of exposed mineral soil. In addition, lodgepole pine seedlings do not compete well with grass or other plant species; and duff layers, increased ground vegetation, and trees on the ground, may inhibit regeneration of lodgepole pine. If regeneration is severely inhibited, the site may change to more of a grass/forb type. Surface fuel loading would increase and there would likely be a subsequent increase in surface fire intensity should an ignition occur.

As time passes, more of the seed source would be on the ground, seed viability would begin to be compromised, and the fall rate of dead trees would accelerate. Hazard trees would not be removed from within road corridors encompassing approximately 7.32 miles of BLM roads. Maintenance costs would increase in relation to the removal of fallen trees from BLM Roads #2502 and #2506. Fallen trees would not be cut and removed from gated spur roads. The accelerated fall rates of beetle-killed trees would result in increased risk to individuals using the roads in the Owl Mountain area.

Scheduled, periodic road maintenance, primarily surface blading and minor drainage structure maintenance, would continue on BLM Roads #2502 and #2506. These two roads would also

receive more intensive maintenance when used by the US Forest Service for their upcoming, Owl Creek Timber Sale. Road maintenance would not occur on BLM Roads #2506-1a and #2506-3. Existing saplings that have established themselves in the running surfaces of these roads would not be removed and would continue to grow. Vegetation and other material would not be removed from ditches and culvert inlets, possibly disrupting the effectiveness of the drainage systems.

The majority of beetle-killed trees would be likely to fall within the next 5 to 10 years. Fuel loading would increase dramatically with any regenerating seedlings and existing understory trees growing up through the fallen trees. Further regeneration of the site would likely be impeded by the loss of seed source and lack of favorable sites. A fire at this time would likely result in soil sterilization, total loss of any existing regeneration, and loss of any remaining seed source. Existing dense stands of young, lodgepole pine would not be thinned, resulting in stagnated stands exhibiting low vigor and increased vulnerability to insect and disease infestations. Due to their location adjacent to areas of increased fuel loading, and their overstocked and crowded conditions, these stands would be at an increased risk of total loss should a fire occur.

Cumulative Effects: Under the no action alternative, bole decay at groundline of beetle-killed trees would continue. Trees have begun falling but fall-rate would increase as time-since-death (tsd) increases. Most trees would fall in the next 5 to 10 years and jackstrawed, downed timber would persist throughout the area for decades, unless removed by wildfire.

Left to natural processes, the re-establishment of fully stocked stands of trees would be more uncertain. Some sites may regenerate quite rapidly where grasses and other plants are sparse, increased sunlight is reaching the forest floor, duff layers are comparatively thin, and there is adequate seedbed moisture for several weeks following germination. The regeneration of other sites may be at less than full stocking, at least initially, where seedbed and climatic conditions are less favorable. A number of these sites would likely fill-in as areas of mineral soil are exposed through animal activity or natural processes. The length of time required for this process to result in fully stocked stands would be dependent on the nature of the disturbance. Finally, vegetation in some areas may remain in primarily a grass/forb state, with scattered trees of various sizes distributed unevenly across the area.

It is anticipated that many of the dead trees in the area would fall across roadways. Downed trees may prevent emergency and non-emergency ingress or egress associated with current uses (hunting, recreation, range allotments, etc.). Keeping roads open for current users would require increased maintenance resulting in increased costs. As budgets and time allow, the BLM would continue to cut and remove trees as they fall across BLM Roads #2502 and #2506. Spur roads would become impassable because of downed trees lying in the roads and from trees encroaching on, and growing in, the running surface of these roads. The integrity of all roads may be compromised as downed trees interfere with the proper functioning of drainage structures. Downed trees may also be removed by current users as they attempt to use roads. Alternatively, current users may attempt to drive around trees blocking roads, possibly resulting in accelerated road condition deterioration and resource damage.

Overstocked stands of young lodgepole pine would not be thinned. These stands would likely stagnate, adversely impacting growth, vigor and health. Stagnated stands would be more vulnerable to insects, disease and drought. In the long-term, ecological resilience to future disturbances would decline.

Mitigation: None

Finding on the Public Land Health Standard #3 for Plant and Animal Communities (partial, see also Wildlife, Aquatic and Terrestrial): The recent mountain pine beetle epidemic has decimated mature and over-mature lodgepole pine stands in the area. Nonetheless, the implementation of either, the Proposed Action, or the No Action, Alternatives would not prevent the area from meeting this standard.

INVASIVE, NON-NATIVE SPECIES

Affected Environment: In a 2013 inventory several species of noxious weeds were identified within the Owl Mountain project area. These species include Musk thistle (*Carduus nutans*), Canada thistle (*Cirsium arvense*), Houndstongue (*Cynoglossum officinale*), Oxeye daisy (*Chrysantheum leucanthemum*), and Spotted Knapweed (Centaurea maculosa). These invasive, noxious weeds are growing in past clear cuts, slash piles, and roads where soil disturbance occurring during harvest operations in previous timber sales facilitated establishment or spread. The area has not been a focus area for treatment within the past 6 years but has been inventoried periodically since 2006. In general, the 2013 population sizes were found to be small (¼ to ½ acre) at most, however increased treatment would be needed in the future to prevent the expansion of the above noxious plant species.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Soil disturbing activities like salvage operations, mechanical treatments, logging operations, and associated temporary roads provide an avenue for invasive or noxious weeds to spread or establish. Indirectly, tree canopy being opened up from salvage operations would increase vegetation growth within this area. If invasive weeds are established from adjacent weed-invested areas or by vehicles used in the logging operations, they are likely to out-compete native preferred vegetation which would decrease available native vegetation. Many noxious weeds are toxic or undesirable to cattle and wildlife. This would decrease wildlife habitat and available forage for cattle. As described under the proposed action, the BLM would monitor and treat the proposed project area in the event that invasive, noxious weeds become established.

Cumulative Effects: Past actions have been focused mostly on treatments on roadsides and open meadows within the parcel. Presently the BLM, in cooperation with its partners, has chemically treated Owl Mountain periodically for noxious weeds and would continue to do so in the future. The initial disturbance may increase the spread of invasive noxious weeds throughout project area. Without proper treatment wildlife and livestock benefits may be reduced, treatment would be continued by the BLM in the future.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Soil and vegetation disturbing activities from salvage operations, mechanical treatments, logging operations, and associated temporary roads would not occur this would limit the ability of invasive, noxious weeds to spread.

Cumulative Effects: Past and current actions would remain the same, in which the chance of noxious weed introduction or expansion would be limited. The BLM would continue treatments and monitoring of noxious weeds into the future.

Mitigation Measures: None

SPECIAL STATUS PLANT AND ANIMAL SPECIES

Affected Environment: Northern goshawks, a BLM designated Sensitive Species, are likely residents of the proposed project area from May through July. The project area supports suitable nesting habitat for this species as well as birds and mammals which would be preyed on by goshawks. Goshawks migrate from the area in fall and do not return until early summer.

There are no known occurrences or habitat for special status plants in the proposed project area.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: See Migratory Section.

Cumulative Effects: See Migratory Section.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: See Migratory Section.

Cumulative Effects: See Migratory Section.

Mitigation: None.

Finding on the Public Land Health Standard #4 for Special Status Species: Neither the Proposed Action or the No Action Alternative would prevent the area from meeting this standard.

MIGRATORY BIRDS

Affected Environment: A number of migratory birds fulfill reproductive functions in the project area's lodgepole pine community from May through July. These species include, but are not limited to, red-tailed hawks, Steller's jays, Townsend's solitaires, ruby-crowned kinglets, hermit thrushes, pine siskins, and hairy woodpeckers. By late August, these birds begin migration-related movements and most would vacate the project area by late September. Few ground nesting birds inhabit the project area due to the lack of ground vegetation. The large amounts of ground litter in the project area has hindered grass, forb, and shrub establishment which would provide food and nesting cover for ground nesting species.

Several species have been identified by the U.S. Fish and Wildlife Service as Birds of Conservation Concern, including: golden eagles, willow flycatchers, northern goshawks, and Cassin's finches. Golden eagles would likely nest in large trees in the project area and forage in the open sagebrush habitat adjacent to the project. Willow flycatchers nest and forage in willow and streamside riparian habitat. The project area offers very little habitat for willow flycatchers and they occur at a low density within the area (< 2 individuals). According to the Rocky Mountain Bird Observatory (RMBO) and the Colorado Breeding Bird Atlas (1994), no pairs have been observed in the area however, one individual was recorded ten miles northwest of the project boundary in 2001. According to transects performed by the RMBO, only two individuals have been recorded in Jackson County from 1998 to 2010. Cassin's finches dwell in the upper montane and subalpine forests, especially tall spruces, Douglas fir and lodgepole pine. Mainly ground foragers, Cassin's feed mostly on seeds, evergreen buds, aspen catkins, and insects. Cassin's are widely distributed throughout the Rocky Mountains between 6000-11000 feet. According to transects performed by the RMBO, only three individuals at two separate sites within ten miles of the project area have been recorded since 2005.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Activities conducted outside the breeding season, May 15 to July 15, would have no potential impact on reproductive functions of migratory birds. Forestry activities described in the Proposed Action that occur during this time period pose a strong, but declining risk of disrupting active nests and would have potential to adversely impact migratory habitat. Activities would likely result in destruction of active nests and direct mortality of individuals. As the breeding season progresses, risk to individuals decreases as nestlings gain the ability to fly and escape threats. Based on very low densities in these areas and that willow habitat is not targeted, the BLM anticipates that no willow flycatchers would be impacted and no nesting attempts would be at risk. Cassin's Finch's would be the species most likely to be impacted by these operations since Cassin's nest colonially and in habitat targeted by the proposed project. With data collected from the RMBO, the BLM estimates that few ($\leq$2), if any, Cassin's finch nesting attempts would be at risk over the life of the project if operations were to fully coincide with the breeding season and occur in occupied habitat. Because the proposed action involves relatively short-term disturbance within a small area per year, the ultimate consequence of nest disruption is greatly reduced. Pairs disturbed early in the nesting sequence would likely have sufficient time to re-nest, whereas those pairs disturbed later in the season (having higher nest site fidelity) would be increasingly less prone to nest abandonment or long absences from eggs or chicks. By assuming that operations would be concurrent with the nesting season, these numbers represent higher end impacts. Regardless, these impacts would be very confined, temporary, and would represent a negligible effect on breeding bird populations at the local landscape level. Impacts, if any, to golden eagles would be avoided as per the design features.

The proposed project would likely benefit ground nesting species since it would open the forest canopy and allow grasses, forbs, and shrubs to establish. Cover for ground nesting species and food for all species (including Cassin's finches) would increase as a result of the forestry projects. In addition, the prey base for predatory species such as red-tail hawks is also expected to increase as more food is available for squirrels, mice, and other small mammals.

Cumulative Effects: No irreversible or irretrievable impacts are expected to occur as a result of the Proposed Action. The proposed action and subsequent treatments would remove the decadent and down trees and result in increased vigor and structural diversity of the units. This would improve habitat for migratory birds and their prey base.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: The No Action Alternative would not change the structure of the vegetation in the project area and would make the area more susceptible to high intensity fires. High intensity fires could result in a long-term change in the habitat, which could adversely impact some tree-nesting species since a fire would likely remove more trees than the proposed project. With this alternative, ground vegetation would continue to decrease in the closed canopy forest habitat and could continue to preclude some migratory bird use of the proposed project area.

Cumulative Effects: No cumulative or irreversible impacts are expected to occur as a result of the No Action Alternative.

Mitigation: None.

AQUATIC WILDLIFE

Affected Environment: The proposed project is adjacent to Owl Creek which supports abundant aquatic wildlife, including coldwater fish, ducks, geese, beavers, muskrats, and chorus frogs.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The proposed harvest activities could increase runoff and sedimentation in the drainages, and subsequently Owl Creek (see also Water Quality and Soils sections). An increase in sedimentation could negatively impact habitat quality for aquatic wildlife by reducing water quality. For example, increased sedimentation can alter pH and decrease dissolved oxygen, which directly impacts fish, aquatic insects and aquatic plants. Sediment depositions also cement the gravel beds used for spawning, reducing the oxygenation of the spawning beds. These species are part of the food chain on which other aquatic wildlife (amphibians, waterfowl, beavers, muskrats) depend on to survive. The vegetative buffers, however, would reduce the potential for measurable sediment loads from the treatments.

Cumulative Effects: No cumulative, irretrievable, or irreversible impacts are expected to occur as a result of the Proposed Action.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action alternative, the existing conditions would be expected to continue and the area would be more susceptible to catastrophic fire. If a wildfire occurred in the project area, there would be a much higher potential for large sediment loads to be deposited in the streams, impacting water quality and aquatic habitat. Heavy

sediment loads could fill pools and spawning gravels. A wildfire could burn a large percentage of the project area, leaving few buffer strips of unburned vegetation to slow runoff and trap sediments.

Cumulative Effects: No cumulative, irretrievable, or irreversible impacts are expected to occur as a result of the No Action Alternative.

Mitigation: None.

Finding on the Public Land Health Standard #3 for Plant and Animal Communities: Neither the Proposed Action or the No Action Alternative would prevent the area from meeting this standard.

TERRESTRIAL WILDLIFE

Affected Environment: The proposed project area provides habitat for a variety of terrestrial wildlife. Rocky Mountain elk, mule deer, moose, mountain lions, and black bears are found in the project area during various times of the year. Moose utilize the project area yearlong and concentrate along Owl Creek. Elk and Mule Deer use the project area yearlong. Elk severe winter range is identified on the western portion of the project area and most of the project area is mule deer winter range and elk calving area. Small mammals, including pine squirrels, pine marten, rabbits, badgers, and a variety of other rodents inhabit the area on a yearlong basis.

The project area lacks a sufficient vegetative understory in many areas to support a considerable number of large and small terrestrial animals. The closed canopy existing in many areas and large amounts of ground litter in the project area has hindered grass, forb, and shrub establishment which would provide food and cover for many terrestrial wildlife.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Wildlife species using the project area would likely be temporarily displaced during project activities, especially during winter when animals are more concentrated and food is scarce. However, these animals would use adjacent undisturbed habitat and return to the project area following completion of harvest activities or pile burning operations. The proposed project would benefit wildlife in the area by opening the lodgepole pine habitat which would facilitate understory vegetation by allowing more sunlight and moisture to reach the ground. A substantial increase in ground vegetation is anticipated after the proposed project, resulting in more cover and food for mammals and ground-dwelling birds.

Cumulative Effects: No irreversible or irretrievable impacts are expected to occur as a result of the Proposed Action. The proposed action and subsequent treatments would remove the decadent and down trees and result in increased vigor and structural diversity of the units. This would improve habitat for terrestrial wildlife and their prey base.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: The No Action Alternative would not change the structure of the vegetation in the project area and would make the area more susceptible to a large-scale

wildfire. This could result in a long-term change in habitat on a large scale, which for the short term would be detrimental to most species dependent on the lodgepole pine forest. With no action, ground vegetation would decrease, shaded by dead and fallen timber. Wildlife use of the area could decrease since less cover and food would be available.

Cumulative Effects: No cumulative or irreversible impacts are expected to occur as a result of the No Action Alternative.

Mitigation: None.

Finding on the Public Land Health Standard #3 for Plant and Animal Communities: Neither the Proposed Action or the No Action Alternative would prevent the area from meeting this standard.

FIRE MANAGEMENT

Affected Environment: The Owl Creek 6th order watershed was looked at for the affected environment due to the fact that wildfire tends to follow drainages. Indicators of wildland fire ecology and management are summarized through fire regime and fire regime condition class classifications. Fire regime is a concept used to characterize the personality of a fire in a given vegetation type, such as how often an area burns, the type of pattern created, and the ecological effects. Fire regime condition class (FRCC) indicates the degree of departure from the historic fire regime (HFR) (Hann and Bunnell 2001(Table 3-28). While the fire regime of a particular area is not likely to change except in the very long term, the FRCC can be changed through fire management and other vegetation management actions. Fire Regime Condition Class I is low vegetation departure, Fire Regime Condition Class II is moderate vegetation departure, and Fire Regime Condition Class III is high vegetation departure. An area that has a higher percent of FRCC 1 than FRCC 2 and FRCC 3 is what is desired. The majority of the Owl Creek 6th order watershed is Fire Regime III, which means that historically, the watershed burned every 35-100+ year frequency and mixed severity (less than 75 percent of the dominant overstory vegetation replaced). Table 1 below shows the current Fire Regime Condition Class (FRCC) of the Owl Creek 6th order watershed.

Table 1

FRCC	Acres	Percent of Watershed
FRCC 1	667	5
FRCC 2	6707	53
FRCC 3	5140	41

From 1992 to current there have been no recorded wildland fires within the Owl Creek 6th watershed.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The prosed project would have minimal impact on the FRCC of the Owl Creek 6th order watershed, the FRCC 2 and FRCC 3 would still be a higher percent

then FRCC 1. Table 2 below shows the FRCC on all the units of the proposed action and its effect on the Owl Creek 6th order watershed, if all of the units are to become FRCC 1.

Table 2

FRCC	Acres within units	Percent of Watershed if all of units become FRCC 1
FRCC 1	1	11
FRCC 2	91	52
FRCC 3	662	36

Proposed action would have beneficial impacts to the Owl Mountain area. If a wildfire were to occur in the Owl Mountain area, after the proposed action is completed it would likely make the units all FRCC 1 and reduce the amount of soil sterilization that would make it become FRCC 2 or FRCC 3 if a wildfire were to occur without the treatment. Another beneficial impact would be the improved safety of ingress and egress to wildland firefighting personnel responding to wildfires in the area. Another beneficial impact would be removing the dead lodgepole pine thus creating safety zones and escape routes for firefighting personnel. By removing the dead lodge pole, it would allow more effective strategy and tactics to be used in the event of a wildfire.

Cumulative Effects: The proposed project and planned projects (BLM and US Forest Service) within the Owl Creek 6th order watershed would have some beneficial impact on the FRCC of the Owl Creek 6th order watershed. Table 3 below shows the FRCC on all the units of the proposed action and planned areas by both the BLM and the U.S Forest Service Parks District.

Table 3

FRCC	Acres within planned areas	Percent of proposed and planned projects FRCC within the proposed action and planned areas
FRCC 1	40	1
FRCC 2	1004	33
FRCC 3	2010	66

Table 4 below, shows the effects on the Owl Creek 6th order watershed, if all of the proposed action and planned units are treated and become FRCC 1.

Table 4

FRCC	Acres within Owl Creek 6th order watershed	Percent of Watershed if all of planned area becomes FRCC 1
FRCC 1	3681	29
FRCC 2	5703	46
FRCC 3	3130	25

If all of the planned area and proposed action is treated, Chart 3 shows that the FRCC 1 would increase by 20 percent, the FRCC 2 would decrease by 7 percent, and the FRCC 3 would decrease by 16 percent. This would show that 71 percent of the Owl Creek 6th order watershed would be moderate to high vegetation departure, with 29 percent being low vegetation departure. These numbers would also be more likely to show a higher percent of FRCC 2 and FRCC 3 and a lower percent FRCC 1 due to the fact that not all of the proposed and planned areas would become FRCC 1 and that all of the planned area would be treated. Although the proposed action and planned areas would not achieve a goal of having a higher percentage of FRCC 1 then FRCC 2 and FRCC 3, the proposed action and planned area would have beneficial impacts by; improved safety of ingress and egress to wildland firefighting personnel responding to wildfires in the area, reducing the amount of soil sterilization that would make it become FRCC 2 or FRCC 3 if a wildfire where to occur, creating safety zones and escape routes for firefighting personnel, and allowing for more effective strategy and tactics for firefighters if a wildfire were to occur.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, FRCC would either stay the same or more than likely see a decrease in FRCC 1 and FRCC 2 and an increase in FRCC 3. Under these conditions, if a wildfire was to burn the area, it is likely that the area burned would stay a FRCC 3 due to the fuel loading that may cause sterilization to soils. Under the No Action Alternative responding wildland firefighter would have limited ingress, egress, safety zones, and escape routes. By limiting ingress, egress, safety zones, and escape routes this creates more problems for strategy and tactics, which would likely lead to wildfires getting larger and more likely to be catastrophic.

Cumulative Effects: Under the No Action Alternative FRCC would have some increase in FRCC 1 and a decrease in FRCC 2 and FRCC 3 due to the planned treatment areas within the Owl Creek 6th order watershed. Table 5 shows how the FRCC would be affected within the owl Creek 6th order watershed.

Table 5

FRCC	Acres within planned treatment areas within the Owl Creek 6th order watershed	Percent of Watershed if all of planned area becomes FRCC 1
FRCC 1	39	23
FRCC 2	913	46
FRCC 3	1,348	31

If all of the planned area is treated then Chart 4 shows that the FRCC 1 would increase by 18 percent, the FRCC 2 would remain the same, and the FRCC 3 would decrease by 10 percent. This would show that 77 percent of the Owl Creek 6th order watershed would be moderate to high vegetation departure, with 23 percent being low vegetation departure. This shows that if the proposed action was to not take place a decrease of 6 percent in FRCC 1 and a 6 percent increase in FRCC 3 and FRCC 2 would remain the same. Beneficial impacts of improved safety of ingress and egress to wildland firefighting personnel responding to wildfires in the area, reduced amount of soil sterilization that would make it become FRCC 2 or FRCC 3 if a wildfire were to

occur, safety zones and escape routes created for firefighting personnel, and more effective strategies and tactics for firefighters to use if a wildfire were to occur would still occur but would be limited to Forest Service lands and not BLM administered lands.

Mitigation: None

RECREATION

Affected Environment: Existing recreational uses in the general area include hunting, hiking, horseback riding, Off-Highway Vehicle use, wildlife viewing, snowmobiling, and driving for pleasure. There is one Memorandum of Understanding with the North Park Snowsnakes snowmobile club that authorizes snowmobile trail grooming of Owl Mountain Roads# 2502 and #2506. The Owl Mountain Roads are utilized by the public to access BLM-administered lands, State Trust Lands leased by Colorado Parks and Wildlife for hunting opportunities and National Forest lands.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Under the proposed action public visitors and the North Park Snow Snakes would be temporarily displaced from recreational activities and snowmobile trail grooming due to timber harvest activities and hauling vehicles that may require restrictions to provide for public health and safety. Typically, the Owl Mountain area receives greater visitation from the general public during the late summer and fall seasons during hunting season. Timber harvest activities may also temporarily displace big game animals when machinery and trucks are active and would impact hunting opportunities. The level of impact would be dependent on the seasonal timing when timber harvest activities occur. The removal of timber would provide additional access points and there could be an increase in unauthorized off route travel by the general public recreating on motorized vehicles. This would have an impact on visitors who are recreating by non-motorized modes of travel. Conversely, by removing timber, the units would become safer for the public as hazard trees are removed from roadsides.

Design features including notification of the public through news releases, contacting the North Park Snowsnakes snowmobile club, implementing temporary access and travel restrictions for public health and safety, and the installation of signage and barriers to prevent unauthorized off route travel for the protection of resources while managing for travel management designations, would provide greater beneficial impacts than adverse effects.

Cumulative Effects: Short term adverse effects from the temporary restriction and displacement of recreational activities within the project area would occur. However, the long term beneficial effects by removing hazard trees that can impact recreational activities within the project area would provide for public health and safety over the long term.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: The No Action Alternative would include not managing or treating dead or dying timber and the negative impacts to recreational opportunities and public health and safety. Lack of timber management could directly impact recreational opportunities

within the area as trees fall and block routes or areas utilized by the public and the North Park Snowsnakes. As trees continue to fall, it also creates a public health and safety issue from the potential of timber falling on visitors, restricting ingress and egress in the event of an emergency and creates the potential for uncontrolled wildfire that can impact the safety of visitors or the North Park Snowsnakes within the area.

Cumulative Effects: Under the No Action Alternative, the existing conditions would remain the same and the potential of recreational opportunities degrading from diminished access and impacts to public health and safety would continue to increase over time.

Mitigation: None.

ACCESS AND TRANSPORTATION

Affected Environment: The Project area has the Owl Mountain Roads #2502 and #2506 that maintained every two to three years. These roads provide access to BLM-administered lands, State Trust Lands leased by Colorado Parks and Wildlife for hunting opportunities, and National Forest lands. Several spur routes exist from past timber management and some that are user created. Two of the spur roads are gated and closed to motorized vehicles year round. A spur road, off of Owl Mountain Road #2506 that accesses National Forest lands, is also gated and closed to motorized vehicles year round.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Roads and areas would require temporary travel restrictions to provide for public health and safety as timber harvesting occurs. The level of effect would be dependent on the seasonal timing when mechanical treatments and burn operations occur. Typically these areas receive greater visitation from the general public during the late summer and fall seasons during hunting season. The removal of timber would provide additional access points for visitors to the areas and there could be an increase in unauthorized off route travel by the general public. Conversely, by removing dead timber, the units would become safer for the public to access and travel within the project area. Design features including notification of the public through news releases, notification to Grazing Permittees and the North Park Snowsnakes, temporary access and travel restrictions for public health and safety and the installation of signage and barriers to prevent unauthorized off route motorized travel for the protection of resources while managing for travel management designations would provide greater beneficial impacts than adverse effects.

Cumulative Effects: Short term adverse effects from the temporary restriction of access and travel within the project area would occur. However, the long term beneficial effects by removing hazard trees that can obstruct access and travel within the units while mitigating for the potential of wildland fire would provide for public health and safety.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: The No Action Alternative would include not managing or treating dead or dying timber through timber sales. Lack of management could directly impact

access and transportation and access within the area as trees fall and block routes or areas utilized by the public and permittees. As trees continue to fall, it also creates a public health and safety issue from the potential of timber falling on visitors, restricting ingress and egress in the event of an emergency and creates the potential for uncontrolled wildfire that can impact the safety of visitors or permittees within the area.

Cumulative Effects: Under the No Action Alternative, the existing conditions would remain the same and the potential of diminished access and impacts to public health and safety would continue to increase over time.

Mitigation: None.

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Attn: John Ziegman

Randy Miller
North Park Snow Snakes

INTERDISCIPLINARY REVIEW:

Name	Title	Area of Responsibility	Date Signed
Paula Belcher	Hydrologist	Air Quality; Surface and Ground Water Quality; Floodplains, Hydrology, and Water Rights; Soils; Wetland and Riparian Zones	01/28/2014
Bill B. Wyatt	Archaeologist	Cultural Resources; Native American Religious Concerns; Paleontological Resources	3/17/2014
Neilie Goodwin	Rangeland Management Specialist	Vegetation; Rangeland Management	05/09/2014
Megan McGuire	Wildlife Biologist	Migratory Birds; Special Status Plant and Animal Species; Terrestrial and Aquatic Wildlife; Areas of Critical Environmental Concern.	07/22/2013
Zach Hughes	Natural Resource Specialist	Invasive, non-native species/Vegetation	04/03/2014
Kelly Elliott	Natural Resource Specialist	Hazardous or Solid Wastes; Geology and Minerals	09/03/2013
John Monkouski	Outdoor Recreation Planner	Wilderness; Access and Transportation; Recreation; Noise	07/09/2013
Hannah Schechter	Outdoor Recreation Planner	Visual Resources, Scenic Byways	07/25/2013
Kenneth Belcher	Forester	Forest Management; Vegetation	05/07/2014
Kevin Thompson	Fire Management	Fire Management Specialist	07/22/2013
Annie Sperandio	Realty Specialist	Realty	05/14/2014
Kenneth Belcher	Forester	Project Lead – Document Preparer	05/07/2014
Susan Cassel	Planning & Environmental Coordinator	NEPA Compliance	5/16/2014

ATTACHMENTS:

Finding of No Significant Impact (FONSI)
Decision Record

U.S. Department of the Interior
Bureau of Land Management
Kremmling Field Office,
P O Box 68
Kremmling, CO 80459

Finding of No Significant Impact (FONSI)

DOI-BLM-CON02000-2013-0016-EA

BACKGROUND

The Kremmling Field Office of the Bureau of Land Management (BLM) is proposing to conduct sanitation/salvage harvest and pre-commercial thinning in the Owl Mountain area about 6.0 miles northeast of the town of Rand, Colorado. As disclosed in the EA, the lodgepole pine stands in this area have seen a dramatic increase in tree mortality as a result of the mountain pine beetle epidemic. The proposal was developed to salvage dead and dying timber while it still retains some value, reduce the threat to public safety, protect infrastructure, and improve tree health in young overstocked stands.

Fifteen units totaling approximately 537 acres would be harvested (see EA map). Associated activities include the possible construction/reconstruction of, and maintenance on, an estimated one mile of temporary roads; temporary road reclamation (i.e., out-sloping, scarification, water barring, seeding, etc.); scarification and seeding of landings; road maintenance and improvement on about 10.4 miles of existing roads (i.e., blading and shaping of road surface, surface repair, cleaning ditches, smoothing and filling ruts, tree removal within road clearing limits, slide and slump repair, maintaining drainage structures, culvert replacement, etc.); and slash piling and burning. Disturbed areas would be monitored for noxious weeds for two years after completion of harvest operations. Noxious weed control actions, if necessary, would be coordinated by the BLM. A 'Release & Weeding' treatment (the cutting of undesirable live trees left after the completion of harvest operations) would occur in all units. Pre-commercial thinning would occur in 16 units totaling approximately 213 acres in young, overstocked stands.

FINDING OF NO SIGNFICANT IMPACT

Based upon a review of the EA and the supporting documents, I have determined that the Proposed Action is not a major federal action and will not have a significant effect on the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity, as defined at 40 CFR 1508.27 and do not exceed those effects as described in the Kremmling Resource Area Record of Decision and Approved Resource Management Plan (updated 1999). Therefore, an environmental impact statement is not required. This finding is based on the context and intensity of the project as described below.

Context

The project is a site-specific action directly involving BLM administered public lands that do not in and of itself have international, national, regional, or state-wide importance.

Intensity

The following discussion is organized around the 10 Significance Criteria described at 40 CFR 1508.27. The following have been considered in evaluating intensity for this Proposed Action:

1. Impacts that may be both beneficial and adverse.

The Proposed Action would decrease the number of standing, beetle-killed trees along roads and areas within the project area. Decreasing the number of standing dead trees would reduce the risk of an individual or property being struck by a falling tree, at least in the areas being treated. Harvest operations would facilitate regeneration of treated sites. Pre-commercial thinning of young, overstocked stands would improve the health and vigor of remaining trees and, therefore, they would be less susceptible to insects or diseases.

Adverse impacts would be minor and of short duration. Implementing the Proposed Action may result in some displacement of wildlife during active harvest operations or associated activities. Wildlife disturbance and displacement may result in potential impacts on hunter success. Likewise, recreational access in localized areas may be blocked temporarily by working equipment.

2. The degree to which the Proposed Action affects public health or safety.

Decreasing the number of standing dead trees would reduce the risk of an individual being struck by a falling tree, at least in the areas being treated.

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

There are no unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

4. Degree to which the possible effects on the quality of the human environment are likely to be highly controversial.

The Proposed Action is not a highly controversial project as far as the effects on the quality of the human environment are concerned.

5. Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risk.

No highly uncertain or unknown risks to the human environment were identified during analysis of the Proposed Action.

6. Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The Proposed Action neither establishes a precedent for future BLM actions with significant effects nor represents a decision in principle about a future consideration. The Proposed Action helps to achieve the objective identified in the 1999 Updated Record of Decision for the

Kremmling Resource Management Plan to "manage all productive forest land that is suitable for producing a variety of forest products on a sustained yield basis".

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.
Past, present, and foreseeable future individual actions do not result in cumulatively significant impacts.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.
The project is a **No Effect**. There are no historic properties that would be affected.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (ESA) of 1973.
No threatened or endangered species are present in the project area, or would be affected by the project.

10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.
Neither the Proposed Action nor impacts associated with it violate any laws or requirements imposed for the protection of the environment.

SIGNATURE OF AUTHORIZED OFFICIAL: ___/s/ Susan Cassel_____
Acting Field Manager

DATE SIGNED: 5/22/2014

U.S. Department of the Interior
Bureau of Land Management
Kremmling Field Office,
P O Box 68
Kremmling, CO 80459

DECISION RECORD

PROJECT NAME: OWL MOUNTAIN SANITATION SALVAGE

ENVIRONMENTAL ASSESSMENT NUMBER: DOI-BLM-LLCON02000-2013-0016-EA

DECISION

It is my decision to implement the Proposed Action, as mitigated in DOI-BLM-CO-2013-0016-EA, authorizing the salvage harvest of approximately 537 acres of dead, currently infested and beetle/disease susceptible trees, the pre-commercial thinning of approximately 213 acres of young, overstocked stands, as well as, the associated activities identified in the EA.

Mitigation Measures

None

COMPLIANCE WITH LAWS & CONFORMANCE WITH THE LAND USE PLAN

This decision is in compliance with the Federal Land Management and Policy Act, the Endangered Species Act, and the National Historic Preservation Act. It is also in conformance with the December 19, 1984; Updated February 1999 Kremmling Resource Management Plan (RMP).

ENVIRONMENTAL ANALYSIS AND FINDING OF NO SIGNIFICANT IMPACT

The Proposed Action was analyzed in DOI-BLM-CO-2013-0016-EA and it was found to have no significant impacts, thus an EIS is not required.

PUBLIC INVOLVEMENT

A scoping letter describing the existing condition, purpose and need, and the proposed action was sent to 22 adjacent property owners and other interested parties on April 26, 2013 (See Appendix for the scoping letter mailing list; See scoping letter in project file). Those receiving letters were asked to submit their written comments by May 28, 2013. The Kremmling Field Office did not receive any written comments.

RATIONALE

By salvaging beetle-killed timber and removing hazard trees, the Proposed Action addresses the purposes and needs identified in the EA. Specifically, the Proposed Action would: salvage dead and dying timber while it still retains some value; reduce the threat to public safety; protect infrastructure; and improve tree health in young, overstocked stands. Analysis of the Proposed Action has concluded that there are no significant negative impacts and that it meets Colorado Standards for Public Land Health.

ADMINISTRATIVE REMEDIES

The decision described in this document is a forest management decision and is subject to protest by the public. In accordance with Forest Management Regulations at 43 CFR Subpart 5003 Administrative Remedies, protests of this decision may be filed with the authorized officer, Stephanie Odell, within 15 days of the publication date of the notice of decision/timber sale advertisement in the Middle Park Times, Granby, Colorado.

This forest management decision is comprised of two parts. The decision to implement and sell a commercial timber sale consisting of salvage and hazard tree units, and associated actions (e.g. road maintenance, road improvement, temporary road construction/reconstruction and reclamation, slash disposal, etc.) will be published as a timber sale advertisement. The decision to implement non-timber sale actions such as: pre-commercial thinning of 25 to 30-year-old lodgepole pine or post-harvest treatments (e.g. Release & Weed/thinning, noxious weed control), would be published as a forest management decision.

Title 43CFR §5003.3 subsection (b) states: "Protests shall be filed with the authorized officer and shall contain a written statement of reasons for protesting the decision." This precludes the acceptance of electronic mail (email) or facsimile (fax) protests. Only written and signed hard copies of protests that are delivered to the Kremmling Field Office will be accepted. The protest must clearly and concisely state which portion or element of the decision is being protested and the reasons why the decision is believed to be in error.

Title 43 CFR § 5003.3 subsection (c) states: "Protests received more than 15 days after the publication of the notice of decision or the notice of sale are not timely filed and shall not be considered." Upon timely filing of a protest, the authorized officer shall reconsider the project decision to be implemented in light of the statement of reasons for the protest and other pertinent information available to him. The authorized officer shall, at the conclusion of the review, serve the protest decision in writing to the protesting party(ies). Upon denial of a protest, the authorized officer may proceed with the implementation of the decision as permitted by regulations at 5003.3(f).

If no protest is received by the close of business (4:30 PM) within 15 days after publication of the decision notice, this decision will become final. If a timely protest is received, the project decision will be reconsidered in light of the statement of reasons for the protest and other pertinent information available, and the Kremmling Field Office will issue a protest decision.

For further information, contact Stephanie Odell, Field Manager, P.O. Box 68, 2103 East Park Avenue, Kremmling, Colorado 80459-0068.

SIGNATURE OF AUTHORIZED OFFICIAL: _/s/ Susan Cassel_____
Acting Field Manager

DATE SIGNED: 5/22/2014